MASTER PLAN FOR ENVIRONMENTAL MITIGATION OF THE METLAKATLA PENINSULA

FOR THE

METLAKATLA INDIAN COMMUNITY

Revised January 1998

RIDOLFI ENGINEERS
and Associates, Inc.

METLAKATLA PENINSULA
MASTER PLAN FOR MITIGATION

PURPOSE

A Master Plan was prepared at the request of the Metlakatla Indian Community in order to identify resource requirements for environmental mitigation of the Metlakatla Peninsula.

The Master Plan:

- Addresses locations of environmental and/or human health concern on the Peninsula where mitigation of impacts of past defense, aviation, and other activities is needed.
- Identifies locations of former government facilities where cleanup could be accomplished by prior operators at the site, such as the FAA or Army.
- Identifies estimated resource requirements to mitigate environmental hazards at each location of concern on the Metlakatla Peninsula.
- Identifies resources required to provide facilities and waste disposal capacity to support mitigation activities.
- Schedules the mitigation activities assuming no funding or other resource constraints.

APPROACH

- A comprehensive list of locations of concern was developed by supplementing those identified in the MIC Preliminary Assessment for the Metlakatla (1996), with information obtained by a review of historical government records (1997).
- Preliminary land use and fisheries use maps of the Metlakatla Peninsula were produced to provide the foundation for development of comprehensive and protective cleanup goals.
- Most of the locations of concern must be further investigated to determine the extent and nature of the contamination prior to development of detailed cleanup plans.
- Risks to human health and natural resources, which take into account cultural values of the MIC, must be assessed to derive action levels for the remediation of contaminants.
- Feasibility studies and designs for mitigation must be based on appropriate cleanup goals.
- Areas on the Peninsula that have had significant past or current use or have been identified for potential reuse by the MIC were identified. Resource requirements to mitigate these locations were estimated and are included in the Master Plan cleanup cost estimate.
- Locations which are former government facilities are identified in the Master Plan. Resource requirements for these locations were based primarily on federal agency cleanup cost estimates for these locations.
- Resource requirements estimated to accomplish the MIC Master Plan for the Metlakatla Peninsula are summarized below.

RESOURCES REQUIRED TO ACCOMPLISH MASTER PLAN

Cleanup of Former Government and MIC Facilities	$68,700,000
Solid Waste Cleanup, Closure & Disposal	$10,800,000
Facilities to Support Mitigation Activities	$14,300,000
Habitat Cleanup & Restoration	$11,300,000
MIC Training & Personnel Administration	$ 2,000,000
Total Cost for Master Plan Elements	**$107,200,000***

**Of the Total Cost, $20 million can be feasibly dedicated for Tribal Labor and Employment.*

Through a Coordinated Comprehensive Cleanup (C3) Program, the U.S. Federal Aviation Administration (FAA) and the U.S. Army Corps of Engineers (ACE) are currently investigating potential remediation and other actions for facilities formerly owned and/operated by federal agencies, including the Department of Defense (DoD), FAA, Coast Guard, National Weather Service, and Bureau of Indian Affairs on the Metlakatla Peninsula. The Master Plan includes the C3 sites and projects related to cleanup of former government facilities on the Peninsula.

Appropriate solid waste management has been identified as critical to the implementation of the Master Plan for the Metlakatla Peninsula. It has been estimated that there are over one-half million cubic yards of waste material currently located on the Peninsula which may require disposal in a RCRA-type landfill. The successful remediation of the Peninsula is dependent upon the efficient removal and disposal of contaminant source and demolition debris materials. The solid waste element of this comprehensive plan is proposed to provide for cleanup and closure of existing disposal sites and for remediation disposal.

The overall purpose of the proposed improvements of the infrastructure, including transportation system, is to allow reliable facilities and access to support cleanup, treatment and removal operations. The intent is to reduce the overall costs of implementation by improving current access for personnel, equipment and supplies. Dock and/or mooring facilities are necessary in order to facilitate the proposed removal actions, and to allow for future off-island transport of recyclable materials. To enhance sea-plane access to the island, the existing remaining sea-plane facilities will be upgraded.

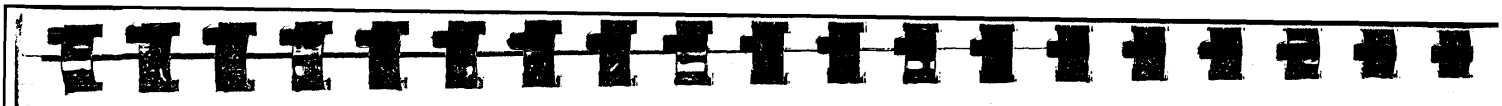
Roadway upgrades are proposed for the Peninsula in order to support potential truck haul loads. Furthermore, many of these routes also contain lead-shielded communication cables installed during the occupation by the DoD and FAA. In addition, as the Peninsula is currently served only by Metlakatla Road, an additional emergency access route is recommended.

Because of previous widespread facility construction and disposal practices, various natural resources on the Peninsula have been impacted. For example, streams and lakes will require structural and hydraulic reconstruction, restoration of migratory corridors, along with habitat rehabilitation in order to support tribal subsistence and recreational uses, including fishing and shell fish harvesting. Cleanup and restoration of the lakes, creeks, and beaches is included in the Master Plan.

With proper training, many of the projects included in this Master Plan could be implemented by Tribal Members. It is estimated that between 50 and 100 Metlakatla Indian Community members could be employed to support the Master Plan work effort. Potential types of employment positions include:

- Environmental Technicians
- Equipment Operators/Construction Workers
- Asbestos and LBP Abatement and Inspection
- Geotechnical Technicians
- Solid Waste Handling
- Hazardous Waste Handling
- Demolition Workers

Resource requirements estimated for Master Plan site work and construction are in 1997 dollars utilizing unit cost information available from Site Work & Landscape Cost Data, 1997 Edition, published by R.S. Means, and from the Environmental Restoration Unit Cost Book developed by Environmental Cost Handling Options and Solutions (ECHOS), 1995. A regional cost factor of 30 per cent, as obtained by R.S. Means, was applied to the base cost estimate to reflect costs of construction in southeast Alaska. An allowance of 15 percent was included for contingencies, and 15 percent was included for engineering and construction administration.



Activity Name	Year 1 1999	Year 2 2000	Year 3 2001	Year 4 2002	Year 5 2003	Year 6 2004	Year 7 2005	Year 8 2006	Year 9 2007	Year 10 2008	Year 11 2009
TRAINING											
CHARACTERIZATION											
INITIAL LANDFILL CELLS											
UPGRADE ROADS & DOCKS											
SITE CLEANUP-USE & LANDFILL AREAS											
ONGOING LANDFILL CELLS											
REPLACEMENT STRUCTURES											
SITE CLEANUP-REMOTE AREAS											
CLOSE EXISTING LANDFILLS											
NEW STRUCTURES BUILT											
WATERLINES BUILT											
RUNWAYS/TAXIWAY UPGRADES											
LAKE & STREAM CLEANUP											
BEACH CLEANUP											
TRAILS & RECREATIONAL AREAS											
CULTURAL & HISTORICAL FEATURES											
CLOSE PORTIONS OF LANDFILL											
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009

Summary of Major Site Structures and Features

SITE LOCATION/FEATURE	UST	AST	LBP	ACM	Spill	Disposal	Barrels	Other
1 Water Treatment Plant		X			X			
2 Engineer Garrison	X	X						
3 6-inch Guns								
4 Quarry								
5 Municipal Landfill						X		
6 Shell Storage Bunker (2)								
7 BIA Road Maintenance Center	X	X	X		X		X	X
8 Bark Disposal Fill Area		X				X		X
9 Power Generation Plant		X			X	X	X	X
10 Automobile Landfill			X			X	X	
11 Supply Dock								
12 North Tamgas Harbor Tank Farm		X			X			
13 Abandoned Landfill						X		
14 Chlorination Building			X	X				
15 White Alice Station	X	X	X	X	X		X	X
16 Antenna Towers			X			X		
17 Beach Access Road								
18 Main Hospital Area		X				X	X	X
19 Non Directional Beacon	X-r		X					
20 Weather Bureau Housing		X	X	X	X			
21 Remote Control Air Ground	X		X	X				
22 AACS Station			X	X				X
23 ACS Transmitter								
24 Middle Marker Facility			X	X	X		X	X
25 Approach Lighting System			X					
26 Canoe Cove Garrison	X	X			X			
27 VORTAC Facility	X	X	X	X				
28 Water Tanks		X						
29 Directional Finder Antenna			X					
30 Satellite Station		X						
31 Underground Fuse Magazines								X
32 SALSR			X					
33 Landing Field								X
34 Runway to Camp Road							X	
35 Small Tower			X					
36 Glide Slope Facility			X	X				X
37 Sand Shed/Asphalt Plant			X		X		X	
38 Sawmill								
39 Fuel Pipeline System	X	X			X			
40 Pipeline Oil/Water Separators	X							
41 Tanker Truck Loading Facility					X			
42 FAA Tank Farm		X	X		X			
43 South Tamgas Harbor Dock						X		
44 USCG Housing	X	X		X	X			
45 USCG Seaplane Base						X		

UST=underground storage tank
AST= above ground storage tank
LBP=lead based paint
ACM=asbestos containing materials

Summary of Major Site Structures and Features

SITE LOCATION/FEATURE	UST	AST	LBP	ACM	Spill	Disposal	Barrels	Other
46 USCG Fire Station/Post Exchange	X	X	X	X				
47 USCG Taxiways and Parking Circles		X				X	X	X
48 Main Construction Camp	X	X	X	X		X		
49 Gasoline Station	X	X	X		X			
50 Fire Truck Hut		X	X	X	X			
51 FAA Storage Yard	X	X	X		X	X		X
52 Waste Water Treatment Pond								
53 FAA Housing Area	X	X	X	X	X			
54 Public School	X		X	X				
55 Service Building	X							
56 PNA/WA Residential Building		X	X	X	X			
57 Administration Building								
58 Utility Officer Buildings								
59 Air Warning Center Garrison		X						
60 Receiver Station								
61 71st Garrison							X	
62 Power House		X	X					
63 Remote Receiver Station			X	X				X
64 Runway Taxiways & Parking Circles		X			X		X	
65 Runway Fortifications								X
66 High Intensity Light								
67 Weather Bureau Station		X	X	X			X	
68 USCG Water Treatment Plant				X				
69 USCG Quarters		X	X	X				X
70 Beacon Tower			X					
71 USCG Garage		X		X	X			
72 Hangar Boiler Building			X	X				
73 Boiler Building AST		X	X		X			
74 USCG ASTs		X	X		X			
75 Hangar	X	X	X	X	X			X
76 Trailer	X							
77 PNA/WA Terminal		X	X	X	X			
78 Air Traffic Control Tower	X		X					
79 Log Storage Yard						X	X	
80 Localizer			X	X				X
81 Moss Point Garrison								
82 Winnipeg Garrison/Annette Inn		X	X	X				
83 Annette Inn Auxiliary Area		X						
84 Tokio Garrison								
85 Tropospheric Relay Station		X	X	X	X			X
86 Satellite Tracking Station								
87 Point Davison Garrison								X

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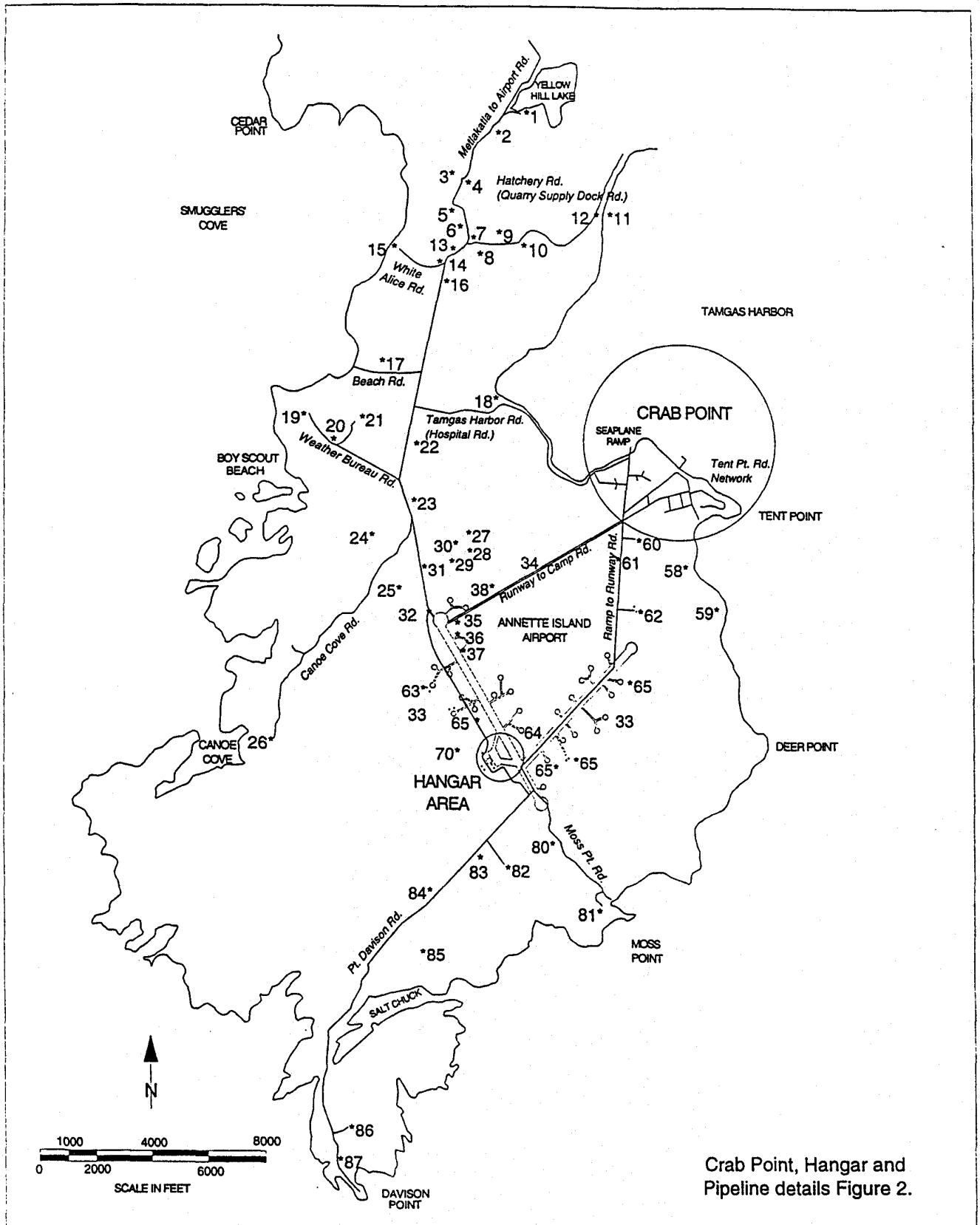
FIGURES



Crab Point, Hangar and Pipeline details Figure 2.

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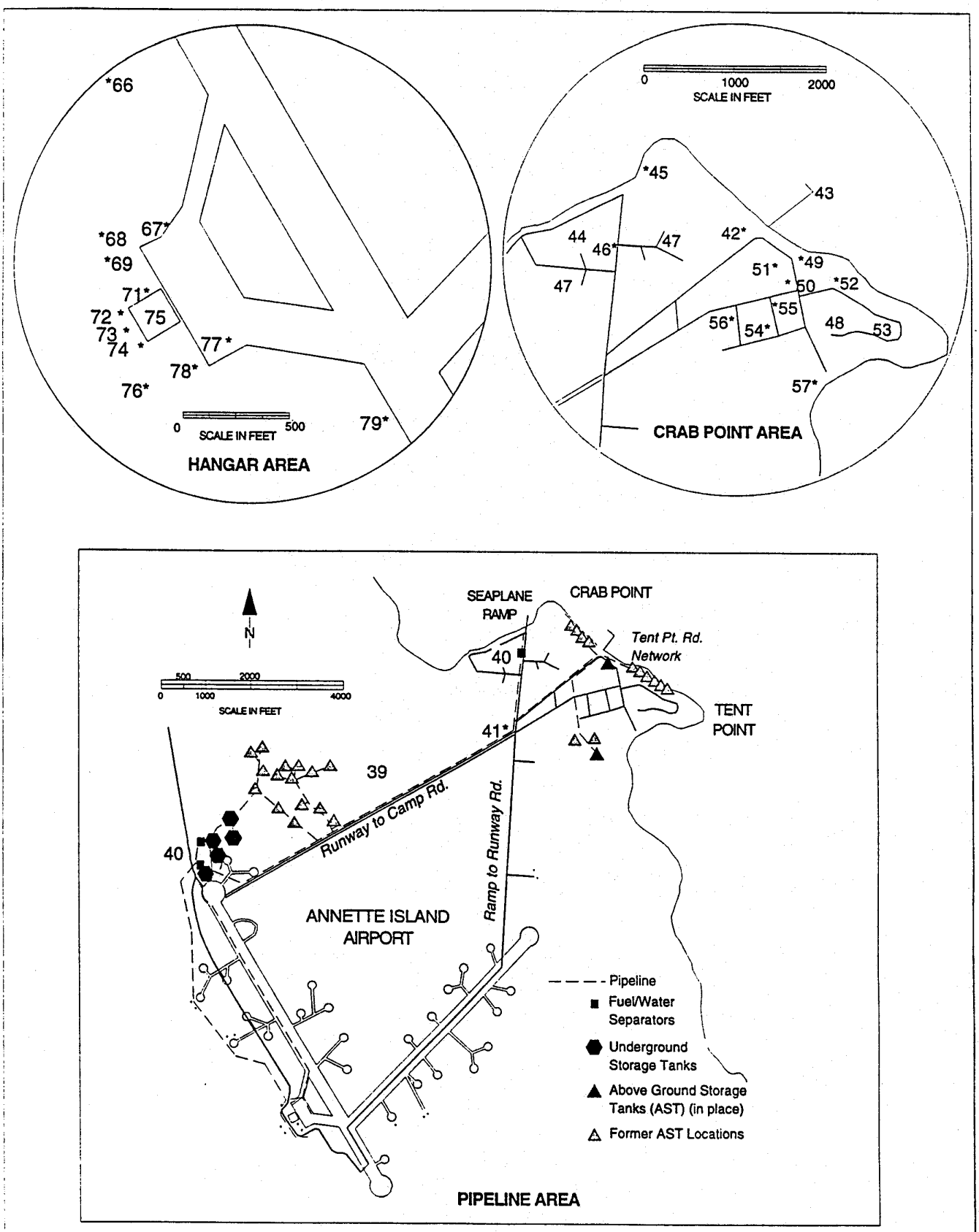
METLAKATLA PENINSULA MASTER PLAN

Figure 1
Major Site Structures and Features



RIDOLFI ENGINEERS	METLAKATLA PENINSULA MASTER PLAN	Figure 2 Major Site Structures and Features

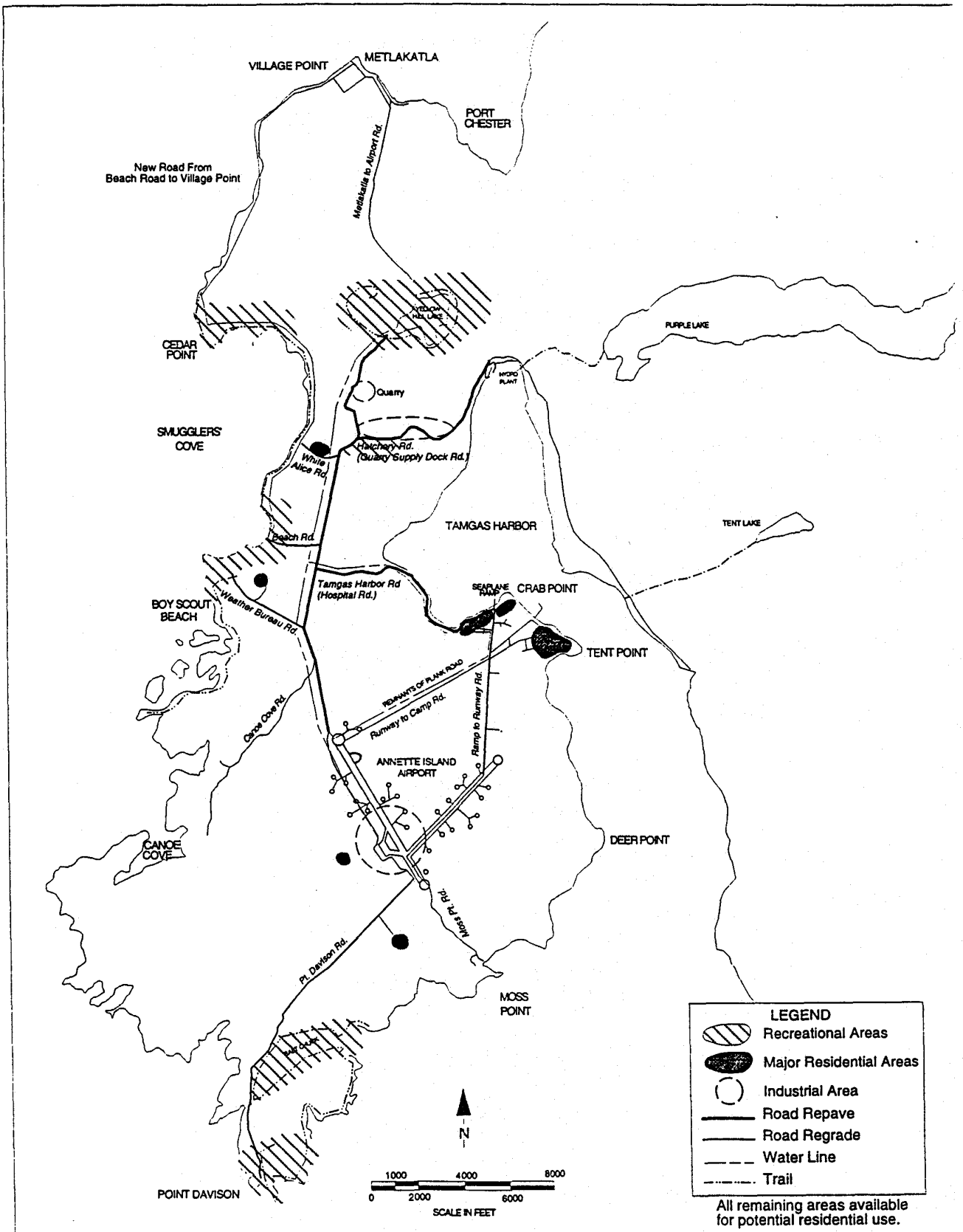


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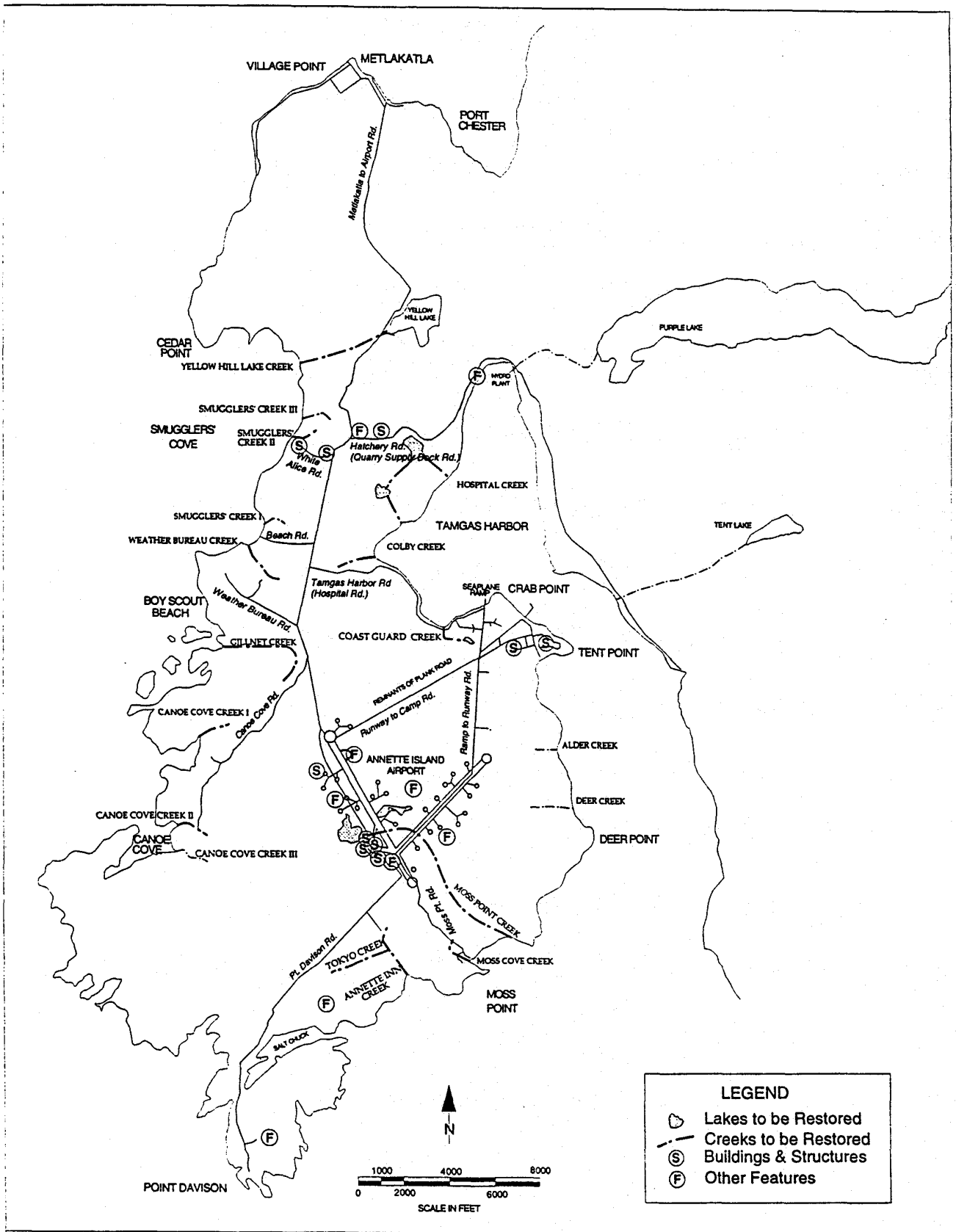
Figure 3

Land Use & Infrastructure



RIDOLFI ENGINEERS	METLAKATLA PENINSULA MASTER PLAN	Figure 4
		Cleanup/Reuse/Restoration

DETAIL OF MASTER PLAN ELEMENTS

CLEANUP OF FORMER GOVERNMENT FACILITIES

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
1 Water Treatment Plant (Yellow Hill)	1	1	The remains of the DoD water treatment plant include a water intake structure, a treatment facility, & a water tank foundation.	C3: Surface sampling for chemicals soil treatment and cleanup sediments.	$240,000*
2 Engineer's Garrison (S. Side Yellow Hill)	2	2	The Yellow Hill Engineer's camp includes several quonset huts, wood debris, piping, fuel tanks, and a small power house.	C3: Remove tanks; treat contaminated soils at tank sites and power house.	$720,000*
3 Six-Inch Guns & Garrison (w. side Metlakatla Road, ~ 0.5 mi south of Yellow Hill)	3	3	The coastal defense of Annette Island included 6-inch guns and 155mm guns. Remains include metal hut frameworks, wood debris, metal piping and tanks, and possible soil contamination at gun mount sites.	C3: Remove tanks; treat contaminated soils at tank sites; investigate soils at gun mount sites; remove metal debris	$510,000*
4 Quarry (e. side of Metlakatla Road across from 6-inch guns)	4	4	The rock quarry was used for rock and gravel for the WWII airfield. The floor of the quarry contains a weigh station, rock crushing equipment, abandoned vehicles, and wood debris.	C3: Remove abandoned vehicles and debris	$460,000*
5 Municipal Landfill (w side Metlakatla Road, s of 6-inch guns)	5	-	The Municipal Landfill is an approximate 2 acre site that has been the primary solid waste disposal facility for Metlakatla community members since prior to the 1960's, and for the lower peninsula tenants (such as FAA and USCG workers) until the mid 1970's.	MP: Properly close the landfill per current requirements	$2,470,000
6 DoD Shell Storage Bunkers (2) (NW corner intersection of Metlakatla Rd & Quarry Rd)	6	21	The remains of the shell storage bunkers consist of wood foundations, and debris.	C3: Include in Task 21, Island -wide Ordnance Explosives (see site 31) investigation	*
7 BIA Road Maintenance Center (NE corner intersection of Metlakatla Rd and Quarry Rd)	7	5	The BIA Road Maintenance Center includes ~ metal huts and road maintenance equipment in an approximate 2 ac site. AST's, UST's, drums, LBP and soil contamination	C3: Remove transformers from dump on-site, and test for PCB's. Remove two UST's and treat soils; Remove metal debris. MP: Remediate exterior LBP; remove and replace soils along 15' periphery of each structure. Add containment for AST's in use.	$510,000* $222,000
8 Bark Disposal Fill Area (SE corner intersection of Metlakatla Rd and Quarry Rd)	8	-	The bark disposal area covers an ~ 7.5 acre area. 16 AST's and miscellaneous debris have been observed on top of the fill area; discarded DoD vehicles have been observed at the base of the pile	MP: Cleanup disposal area; stabilize slopes; salvage bark and compost; ship metals; properly close and cap remaining debris	$2,800,000

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
9 MPL Power Generation Plant	9	6	An Army plant was operated at this site prior to replacement by MPL Plant. The remains contain a metal building in an ~ 1.5 ac enclosed area. AST's, numerous 55-gallon barrels, machinery and debris are present.	C3: Chemical testing for PCB's, mercury, and other contaminants; treat contaminated areas; remove AST's and 55 gallon drums.	$770,000*
10 Automobile Landfill (S side Quarry Rd, ~0.5 mi. e of Metlakatla Rd)	10	7	This closed dump originated as a military disposal site. The 0.35 ac site contains numerous 55 gallon drums, airplane parts, automobiles and large metal building construction debris.	C3: Remove and properly dispose of debris	$270,000*
11 DoD Supply Dock (N. Tamgas Harbor, off of Quarry Rd)	11	-	The supply dock was the first dock constructed at the airbase for supplying material to the engineer's garrison and quarry. The dock rapidly deteriorated within a few years of construction because it was formed of untreated wood.	MP: Replace dock to allow shipping of metal debris for salvage/ recycling, and shipment of materials and supplies required for cleanup	$2,200,000
12 North Tamgas Harbor Tank Farm (N. Tamgas Harbor, off of Quarry Rd)	12	8	The tank farm is a bermed, 50'x100' area containing five 15,000 gallon AST's. The tank farm formerly supplied diesel to MPL site via fuel pipeline. The tanks are designated for use as spill containment in a regional emergency response plan.	C3: Remove fuel tanks; treat contaminated soil. MP: Clean and repaint 2 tanks for use in emergency response.	$1,350,000* $100,000
13 Abandoned Landfill (NW corner Metlakatla Rd and White Alice Rd)	13	49	The abandoned landfill is a closed landfill site, ~ 400'x300' in size. Includes waste from various sources including military and FAA.	C3: One of three dumps designated under C3 task 49 for cleanup of batteries, paints, fuels, metal and debris & proper disposal.	$300,000*
14 Chlorination Building (NE corner Metlakatla Rd and White Alice Rd)	14	-	The chlorination building is a 200 sf wood frame structure constructed in the late 1960' as part of the steel water pipeline system built by the FAA. The facilities are in disrepair.	MP: Replace Chlorine System	$50,000
15 White Alice Station at Smuggler Cove	15	9	The Air Force White Alice Station was constructed in the 1950's as a-50'x350' two story building, a microwave tower, and 2-tropospheric relay antennas. The building is currently used by MPL. The site includes AST's, UST's, numerous 55 gallon drums, PCB transformers, batteries, and miscellaneous debris, soil staining, ACM and LBP.	C3: Address AST's; remove 55 gallon drums; remove transformers; treat contaminated soils MP: Remove ACM; remediate LBP	$1,190,000* $210,000

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
16 Antenna Towers (SSE of White Alice /Metlakatla Rd intersection)	16	-	Remains of 3-large orange and white towers (not standing)	C3: Included with airfield work?	
17 Beach Access Road	17	-	This 2,200' road was built sometime between 1961-1973 to connect Metlakatla Rd with Smugglers Cove.	Included in roadway work.	
18 Main Hospital Area (w. Tamgas Harbor, off of Hospital Road)	18	11	The Army constructed a 75-bed hospital for the Annette Landing Field. It was a Quonset hut facility, which was abandoned after the war. The site contains debris, metal huts, barrels, 55 gallon drums, electrical conduit; fuel in wood stave tank.	C3: Remove power house and UST's; remove 55 gallon drums and fuel tank; treat contaminated soil; remove debris.	$380,000*
19 Non- Directional Beacon (end of Weather Bureau Rd above Boy Scout Beach)	19	12	The beacon site contains a total of five towers: one operating and 4 are on the ground. The FAA has a lease with the MIC for this facility.	C3: Remove towers and building; perform chemical sampling and remediate soils at tower location.	$200,000*
20 Weather Bureau Housing (on Weather Bureau Rd, ~0.5 mi w of Metlakatla Rd)	20	13	The weather bureau housing consists of seven wood frame structures (6 residences and 1 maintenance building) constructed in the late 1940's. An AST is located adjacent to each building.	C3: Treat contaminated soils under active AST's and upgrade fuel tanks. Investigate sewage systems; MP: Remove ACM; remediate LBP for buildings	$810,000* $100,000
21 Remote Control Air Ground (off of Weather Bureau Rd)	21	14	The RCAG has been recently decommissioned by the FAA and the USCG has recently leased this property and established a GPS ground station using the FAA's existing building and 3 new towers.	C3: Remove UST; treat contaminated soil from UST. ACM and LBP associated with site.	$250,000*
22 AACS Station (e side of Metlakatla Rd, s of Hospital Rd)	22	15	The AACS Station provided for weather and navigational support to WW II air crews. Remains at this site include a tower, foundations, floor tile, and electrical debris.	C3: Remove electrical equipment; remove towers ACM and LBP associated with site.	$170,000
23 ACS Transmitter (e side of Metlakatla Rd, s of Weather Bureau Rd)	23	10	The ACS was an Army-operated communications system. The remains of this site include towers, possible generator mounts, power poles, and metal hut frameworks.	C3: Remove towers; Investigate lead and other contamination at tower location; perform chemical sampling at the transmitter building site.	$510,000
24 Middle Marker Facility 25 Approach Lighting System (n end runway at Canoe Cove Rd)	24 25	16 16	The middle marker facility & approach lighting system were constructed to support navigation. The facility includes a 8'x12' wood frame bldg. with abandoned electrical equip., floor tile, & barrels.	C3: Remove building, equipment, barrels; Remove light towers; chemical sampling at towers.	$460,000

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
26 Canoe Cove Garrison (off of Canoe Cove Rd near Canoe Cove)	26	17	The Canoe Cove Garrison consisted of a quonset hut camp. There is metal and wood debris remaining.	C3: Remove 200 gallon UST; treat contaminated soil from UST removal; remove fuel tank, power house; treat contaminated soil, power house; remove debris	$660,000*
27 VORTAC Facility (e of Metlakatla Road, n of the Runway-to-Camp Rd)	27	18	The VORTAC facility consists of a 30'x30 concrete block building, an overhead circular grid, an elevated storage platform, and metal hazardous materials storage boxes. The facility had two UST's and has one AST in use.	C3: Treat Pb and fuel contaminated soil.	$870,000*
28 Water Tanks (n of Runway to Camp Road, near VORTAC)	28	-	The remains of the DoD water tanks consist of wooden platforms, wood tank debris, concrete valve boxes and sections of water pipe.	C3: Included with Airfield work.	
29 Directional Finder Antennae (Off of Metlakatla Rd, ~ 0.25 mi north of Runway)	29	18	The directional finder antennae is a 15 ft circular orange antenna.	Addressed with VORTAC	
30 Satellite Station (~1000' sw of VORTAC)	30	-	The FAA recently erected a new facility consisting of a 10x20'metal building, 1 AST, and circular satellite receivers in a fenced enclosure.	No recommended action.	
31 Underground Fuse Magazines (~0.1 mi north of Runway, sw of Metlakatla Rd)	31	21	The remains of the underground fuse magazines consist of 2 underground bunkers covered w/ steel plate doors. The northern bunker contained cases of dynamite; the contents of the second bunker are unknown.	C3: Included in Island-Wide Explosives Investigation.	$225,000*
32 SALSR (nw end main runway)	32		The remains of the short approach lighting/runway identification light system consist of a 5'x10'x5' orange metal box on a concrete pad	C3: Included with Airfield in work.	
33 Landing Field	33	19	The World War II constructed runway included a paved main runway & second gravel strip. The main strip is 7,500 ft long, and the gravel runway, 6,000 ft. There are also towers at the airfield. Along the runway are barrels of asphalt.	C3: Remove towers; remove asphalt drums; remediate soils.	$2,670,000*
34 Runway to Camp Road (Plank Road from runway ne to Crab Point)	34	47	This 8,400 ft long wood plank road was originally built on pilings across wetlands. The road has collapsed. An undetermined number of orange 55-gallon barrels were observed discarded at the juncture with the runway.	C3: Investigate soils along plank road, which contained a pipeline. Evaluate removal of Plank Road. Removal of pipeline and barrels.	$550,000*
35 Small Tower (nw end of runway)	35		A small (15') tower located e of main runway & s of runway-to-camp road.	C3: Included with Airfield work.	

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
36 Glide Slope Facility (nw end of runway)	36	20	A small wood shed & tower comprise the Glide Slope facility. The shed contains electronic equipment.	C3: Remove building and equipment	$110,000*
37 Sand Shed/Asphalt Plant (nw end of runway, s of glide slope facility)	37		The remains of the FAA metal sand shed consists of charred wood debris, metal, several 55 gallon barrels and remnants of a sand pile. The asphalt plant is gone, however a layer of tar covers the ground .	MP: Remove barrels, debris; remove and replace contaminated soils; revegetate.	$245,000
38 DoD Sawmill	38		The remains of the DoD sawmill consists of wood foundations, wood loading platform, & a sawdust area . The sawdust area has very little vegetation	MIC: Remove debris, sawdust; Investigate soils beneath sawdust area; remove and replace soils.	$40,000
39 Fuel Pipeline System	39 40 41	23 24 25 26 27	The remains of the DoD fuel pipeline system consist if an estimated 6.8 miles of tar coated, welded steel pipeline. The pipeline supplied fuel to AS's along the coastline north and south of the dock, AST's near the Dock, south of the main construction camp, northeast of the runway, UST's ne of the main runway, fueling stations/pits along the runway and in the hangar area and the USCG Seaplane base.	C3, 23: Fuel Pipeline: Main Dock to Dock Tank Farm: Drain and remove exposed fuel line, dock to tankfarm; chemical sampling along fuel line; treat contaminated soil along fuel line & beach. C3, 24: Fuel Pipeline, Dock Tank Farm to USCG Seaplane Ramp: Drain: Drain & remove fuel line,; chemical sampling along fuel line; treat contaminated soil along fuel line. C3, 25: Fuel Pipeline, Dock Tank Farm to 3-80,000 gallon Tanks: Drain all pipelines and remove exposed pipeline. C3: 26, Aircraft Gas Operations Reserve Storage: Remove pipeline & valve pits; consider removal of concrete saddles; treat contaminated soils. C3: 27, Aircraft Tactical Fueling System: Drain & remove 5 UST's; remove exposed fuel lines; treat contaminated soil.	$410,000* $410,000* $1,940,000* $1,260,000* $2,440,000*
40 Pipeline Oil/Water Separators					
41 Tanker Truck Loading Facility			The remains of oil/water separators consist of concrete vaults, with piping, gages, and valves.		
42 FAA Tank Farm @ Main Supply Dock (near Main Dock on S. Tamgas Harbor)	42	28	The FAA Tank Farm is an unbermed area including a tanker dock , multiple AST's, pipelines, and stained soils.	C3: Remove AST's; Treat contaminated soil, including contaminated soil at Main Dock.	$5,410,000*
43 South Tamgas Harbor Dock (Main Dock)	43	29	This 800-ft long tanker dock served as a supply point and pipeline terminus for fuel loading. Much of the dock has collapsed. Debris and ordnance may have been dumped off the dock.	C3: Dive investigation off Main Dock for dumping of transformers, possible contaminants; Remove pipelines on dock; Remove Dock. MP: Refurbish dock to allow shipping of recyclable debris.	$1,610,000*

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
44 USCG Housing (near Crab Point, NW of Main Dock)	44	30	When the Coast Guard left Annette Island in 1977, they removed most of the structures. Debris, 14 concrete pads, several quonset huts, UST's & AST and transite pipes remain.	C3: Remove fuel tanks; treat contaminated soils. Remove debris. Remove fire station and boiler.	$760,000*
45 USCG Seaplane Base (Crab Point- USCG Housing)	45	-	The majority of the Seaplane base was removed in the mid 1960's. The remains of the seaplane base consist of a gravel covered seaplane ramp, wood and metal debris, several dilapidated wood frame buildings and metal huts.	MP: Remove debris; regrade seaplane ramp.	$25,000
46 USCG Fire Station/Post Exchange (Nose Hangar) (Crab Point-USCG Housing)	46	30	The remains of the fire station/ post exchange consist of a concrete block building with a large AST. The building was constructed by the USCG after WW II for use as a Nose Hangar, fire station, and Post Exchange. The AST gravity-fed heating fuel to the USCG housing.	C3: Included with USCG Housing	
47 USCG Taxiways and Parking Circles	47	19	The two amphibious plane taxiways have been converted to roadways. The parking circles contain concrete slabs, electrical trailer hookups, misc. metal structures, debris, pressure locking cannisters, 55-gallon barrels, and a Westinghouse transformer.	C3: Included with Airfield work	
48 Main Construction Camp	48	-	Remains of the former DoD buildings included in The Main Construction Camp include concrete & wood foundations, and metals and wood debris. 8 of the original DoD buildings were used by the FAA until the mid-1970's	Recommended Action: Remove debris, including LBP, ACM and dispose	$228,000
49 Gasoline Station (FAA Storage Yard)	49	31	The FAA stored airport equipment here; runway sweeper, passenger ramp, crane and other aircraft support items. This site	C3: 55-gallon drums; remove equipment.	$4,940,000*
50 Fire Truck Hut (FAA Storage Yard)	50	31	has AST, an abandoned boiler, fire-destroyed	ACM, debris, and soil remediation for fuel, LBP associated with site.	
51 FAA Storage Yard (Tent Point)	51	31	building debris and fuel - contaminated soils.		
52 Waste Water Treatment Pond (Tent Point)	52	-	An approximate 100'x100' treatment pond has been used to aerate sewage generated at the FAA housing area.	MP: Upgrade sewage lagoon to support increased use of the Peninsula during cleanup activities.	$84,000

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
53 FAA Housing Area (Tent Point)	53	32	The FAA Housing was built during World War II . One of the buildings houses the MIC forestry and fisheries departments; 3 are used as residences by MIC members and five are vacant. 8* of the 9 buildings contain LBP, ACM.	C3: Remove UST's, AST, treat soils MP: Remove ACM; Remediate LBP; Remove LBP-contaminated soils ; provide containment for AST's to remain in service.	$2,440,000* $280,000
54 Alaska Public School (SE of Tent Point, near FAA Housing)	54	33	The State school has burned to the ground. Remains include a concrete foundation, ACM, some equipment, a boiler and piping.	C3: Remove ACM; remove boiler LBP contaminated soils, debris associated with site.	$450,000*
55 Service Building (SW of fire hut from FAA Storage Yard)	55	-	The remains of the service building include a concrete foundation, building debris, hydraulic floor hoist and trench.	C3: Included with Crab Point work.	
56 PNA/WA Residential Building (SW of FAA Housing on Tent Point)	56	34	This apartment house was built for Pacific Northern Airlines/ Western Airlines employees. The two story building is currently used for MIC residences. The site includes ACM, LBP, AST's, and contaminated soils.	C3: Remove AST; Soil treatment at AST locations; One wood fuel tank would be left for historic value. MP: Remove ACM, debris, wood tank; remediate LBP.	$1,850,000* $30,000
57 DoD Administration Building (Tent Point, on S Tamgas Harbor)	57	-	The remains of the DoD administration building include a 5'x5' concrete structure, speculated to be a vault.	C3: Included with other Tent Point work	
58 DoD Utility Officer Buildings (Tent Point on S Tamgas Harbor)	58	-	The remains of the DoD Utility Building Offices include collapsed wood frame structures, wood foundations, wood pilings, a small concrete building, an outhouse and misc. debris.	C3: Included with FAA Housing, Air Warning Center Garrison or Crab Point Work?	
59 Air Warning Center Garrison (S Tamgas Harbor, between Tent and Deer Point)	59	35	The AWS included a radar, and garrison. It is in ruins today, overgrown with dense vegetation.	C3: Remove UST's; Remove power house and AST's; Remove contaminated soils.	$1,000,000*
60 Receiver Station (n end Ramp-to-Runway Road, n of 71st Garrison)	60	-	The remains of the receiver station consist of metal hut frameworks, generator mount, and 80 foot wood antenna pole.	C3: Included with 71st Garrison or Plank Road removals.	
61 71st Garrison (off of Runway and Ramp Roads, inland of Tent Point)	61	36	The 71st was an antiaircraft unit. They lived in this camp and had Bren Gun emplacements nearby. Reportedly the FAA buried drums of transformer fluid at the camp.	C3: Investigate drums of transformer fluid.	$1,070,000*

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
62 Power House, Ramp Road (off of Runway and Ramp Roads, inland of Tent Point)	62	37	The remains of this power plant include the frame power house building, AST saddles, and Pb shielded powerlines; possible UST bunker tank, ACM & LBP; the generators have been removed.	C3: Chemical testing at Power House; remove Pb shielded power lines	$2,300,000*
63 FAA Remote Receiver Station (Off of Main Runway)	63	38	A small concrete block building & 20 ft tower comprise the remote receiver station. A downed 60 ft tower is nearby. In the building, & scattered nearby, is electronic equipment & Pb shielded power lines.	C3: Remove building and equipment, and Pb shielded lines. MP: Remove LBP, ACM	$1,170,000* $20,000
64 Runway Taxiways & Parking Circles (Off of both runways)	64	19	The majority of the parking areas adjacent to the 2 runways contain the remains of wood foundations from pilot huts. Some circles contain lumber debris; empty and full barrels of tar (barrels stamped USN, US Navy and US Army).	D3: Included with airfield work.	
65 Runway Fortifications (Off of both runways)	65	19	Runway fortifications consist of v- and w-shaped trenches, pillars, piping and earthen bunkers.		
66 High Intensity Light (N of Hangar Area)	66	-	The remain s of the High Intensity runway light consist of a small light fixture and electrical conduit.	C3: Included in Airfield or Hangar Area work	
67 Weather Bureau Station (N of Hangar area)	67	-	The remains include an AST, two structures, an instrument gauging area, and 55-gallon drums buried in the slope n of buildings.	C3: Included in Airfield or Hangar Area work	
68 USCG Wastewater Treatment Plant (N of Hangar Area)	68	-	The remains of the sewage treatment plant include a wood frame structure, empty aluminum vats, and a control panel room.	C3: Included in Airfield or Hangar Area work	
69 USCG Quarters (NW of Hangar)	69	39	The remains of the USCG Quarters consist of a 2-story building. The building has a boiler room, tanks, contaminated soils. Testing on the building indicates 10-15 % ACM in the floor, ceiling, boiler insulation, wall board, piping, and roof material.	C3: Locate and remove tanks; Chemical sampling of tank area and treatment of contaminated soil; remove tower. MP: Remove & replace structure	$810,000* $496,000
70 Beacon Tower	70		An approximate 50' tower	C3: Included with Airfield.	

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
71 USCG Garage (NW of Hangar)	71	-	The USCG Garage is a former USCG office building currently in use by the MIC Sawmill operation to store spare parts, barrels of lubricants and other petroleum - related products, and to perform minor repair on sawmill equipment and vehicles.	MP: Remove ACM; Provide Containment for AST, barrels	$50,000
72 Hangar Boiler Building (Hangar Area)	72	22	The Hangar Boiler Building contains two insulated boilers and associated insulated piping	C3: Included with Hangar	
73 Boiler Building AST (Hangar Area)	73	22	One 4,000 gallon AST is located s of the Hangar Boiler Building.	C3: Included with Hangar	
74 USCG AST's (Hangar Area)	74	-	The USCG AST's are 2-10,000 AST's on elevated metal tank stands. Soil staining has been observed under the AST's	MP: Clean tanks, remediate LBP, Soils; Re-use tanks for Fire Protection Storage	$50,000
75 Hangar (SW of intersection of 2 runways)	75	22	The steel hangar and supporting facilities were constructed as part of the World War II landing field. The FAA has removed PCB contamination from the transformer room and the exterior of the Hangar.	C3: Remove fuel tanks, UST's; Remove AST's; Treat contaminated soil, "POL" and Pb; Remove boilers and heat plant; PCB testing; Dispose of fluorescent light transformers; remove hangar including ACM. MP: Replace hangar	$3,950,000* $1,763,000
76 Trailer/Gas Station (SW of Hangar)	76	-	The trailer is a new trailer which has been setup Approximately over a former gasoline service station operated by Standard Oil .	Included with Hangar	
77 PNA/WA Terminal	77	-	The remains of the PNA/WA terminal includes a single story wood frame building with garage.	MP: Remediate LBP; Remove ACM, debris; Add containment for AST's; Replace structure	$230,000
78 Air Traffic Control Tower	78	40	The 40 foot tower with catwalk was constructed in World War II as a control tower.	C3: Remove tower & building debris.	$60,000*
79 Log Storage Yard (se of hangar)	79	-	The current hangar sawmill operation stores logs in an open 300'x400' area. This area is reported to have been filled with discarded 55-gallon tar drums.	MP: Remove barrels, debris; remove contaminated soils; regrade to allow reuse of site, or replace with similar yard at new location	$390,000
80 FAA Localizer (Moss Pt. Road, ~0.25 mi se of runway	80	41	This 12x18 foot wood frame structure was built in 1952. Today it contains abandoned electrical equipment; There is a downed tower.	C3: Remove building, tower and equipment	$110,000*

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
81 Moss Point Garrison (Moss Point)	81	42	Moss Point was another garrison for airfield personnel. The Quonset huts are decaying in the thick forest.	C3: Remove debris	$870,000*
82 Winnipeg Garrison/Annette Inn (~ 0.25 mi s of Runway, and 0.2 mi e of Pt Davison Rd)	82	43	This World War II garrison was a housing and administrative area for air units. The remains include wood and metal debris, a boiler building wi/ ACM, tanks.	C3: Remove fuel tanks; treat contaminated soils; remove debris	$870,000*
83 Annette Inn Auxiliary Area (s side Pt. Davison Road, ~0.25 mi s of runway)	83	-	The remains of the Annette Inn auxiliary are consist of a wood foundation, metal and wood debris, electrical conduit and an AST.	C3: Included with Annette Inn.	
84 Tokio Garrison (n side of Point Davison Rd, 0.75 mi sw of runway)	84	44	The Tokio camp included a power plant, firing range, and living quarters. The camp is in ruins today.	C3: Remove fuel tanks, power house; treat contaminated soils, powerhouse; clean up abandoned firing range (Pb)	$470,000*
85 Tropospheric Relay Station (s of Point Davison Rd, above Salt Chuck)	85	45	The former White Alice Station off of Point Davison Road, and later ALASCOM communication facility was a communications system in support of the radar warning system.	C3: Remove AST; treat contaminated soil, fuel tanks; PCB testing and treatment; remove building. MP: Keep building for historical tourism value. Remediate ACM	$1,420,000* $20,000
86 Satellite Tracking Station (Point Davison)	86	-	The remains of the satellite tracking system include a cylindrical concrete structure, several telephone poles.	MP: remediate LBP, remove debris; keep for historical value	$25,000
87 Point Davison Garrison (Point Davison - s tip of peninsula)	87	46	This garrison was for airfield personnel and soldiers manning 155mm guns and other defenses. A sewer system was used and may contain solvents, There are aircraft parts, vehicles, and equipment.	C3: Remove UST's; Inspect sewer system; remove vehicles and metal debris.	$1,070,000*
88 Burned Buildings, LBP (25 Sites)	-	48	A number of World War II buildings have burned down and are believed to have lead-based paint.	C3: Chemical sampling at 25 building sites; remove building debris	$490,000*
89 Trash Dumps, Island Wide (Cemetery Beach, Pt Davison)	-	49	There are dumps with debris from various sources, including military & FAA.	C3: Remove batteries, paints, fuels, steel and trash	$440,000*
90 Fuel Dump Sites, Island Wide (12 Sites)	-	50	There are twelve drum sites, with a total of 5,000 55-gallon fuel drums. The military disposed of fuel drums in various locations; there are also asphalt drums left from the FAA paving.	C3: Remove drums; remediate soils	$1,870,000*

Site (Location)	MIC#	C3#	Background	Proposed Action	Cost
91 Hotspur Island	-	51	Hotspur Island was an advance warning and observation site.	C3: Conduct survey for fuel drums.	$160,000*
92 Callaghan Island	-	52	Callaghan Island was a WW II advance warning and observation island.	C3: Conduct survey to locate fuel drums, other contamination.	$160,000*
93 Warburton Island	-	53	Warburton Island was an advance warning and observation site.	C3: Conduct survey for fuel drums.	$160,000*
Subtotal, Cleanup Items:					**$68,700,000**

* Cost based on federal agency estimate

OTHER MASTER PLAN ELEMENTS

MIC Training & Administration	Employment skills, hazardous materials, and health and safety training for MIC members. Administration of local work force to support mitigation effort.	**$2,000,000**

Waste Cleanup, Handling and Containment			
Description	**Background**	**Proposed Action**	**Cost**
RCRA Waste Repository	A RCRA Subtitle D Repository would allow consolidation and closure of widespread dumpsites and proper disposal of materials from these sites.	Construct RCRA Subtitle D Waste Repository (approximate volume 500,000 CY)	$9,300,000
Transfer Station and Recycling/Salvage Center	These facilities would allow reduction of waste stream to repository (reducing required volume over time); when used with transfer station, may offer community with disposal convenience and allow better control of waste to the repository. The recycling center could be effective used to coordinate, consolidate and ship large amounts of discarded metal materials present on the Island. A composting operation would be included to allow for potential recycling of wood waste and other organic materials.	Construct waste transfer station and recycling center to facilitate collection, disposal, and shipping of metal waste materials. Transfer station facilities include approximate 1 ac site, 20,000 sf structure, monitor wells, baler, sorting equipment and miscellaneous site work. Facilities for Recycling/Salvage Center include approximate 10 acre site (to allow for compost activities), 15,000 sf structure chipper, sorting equipment, monitor wells and miscellaneous site work.	$1,520,000
Subtotal, Waste Cleanup, Handling and Containment:			**$10,820,000**

Support Facilities and Roadways Required for Mitigation Activities			
Description	Background	Proposed Action	Cost
Water Supply, Distribution, Fire Protection	Most of the peninsula is served by a steel waterline from Yellow Hill which was installed in the 1960's. The waterline is severely corroded, and is encased in crumbling ACM. There are also concerns related to fire pressure and water quality resulting from the use of "dead-end" lines to Crab Point.	Encapsule and remove 8.9 miles of existing line and replace with new 6 and 8-inch diameter waterline.	$2,580,000
Waste Water System	Many of the septic tanks in service were installed during DoD occupation of the Island. Some remain in service; others may need to be decommissioned and closed. There are reports of inappropriate dumping in some of the septic systems.	Clean/replace existing in-service tanks; add new drainfields as necessary; Decommission airport septic system; install collector system, lift station and force main from airport to Crab Point WWTP.	$400,000
Transportation Support Facilities Airport Upgrade	The existing runways on the Metlakatla Peninsula are presently utilized sporadically for emergency landings only. The paving exhibits classic "alligator" type cracking. It may be desirable to upgrade these runways to current FAA standards to allow enhanced Island access by air.	Prepare standard FAA Master Plan for Airport; replace asphalt surface course for Runway A, regrade gravel surface course for Runway B, upgrade lighting, signage, markers, tie downs and drainage .	$1,600,000
43 Floatplane Ramps	Current air access to the Metlakatla Peninsula is via seaplanes or floatplanes from the neighboring Ketchikan Airport. In order to allow better access for cleanup activities and personnel, it may be desirable to retain and upgrade the remaining sea-plane facilities.	Re-grade rock-filled ramp near DoD South Tamgas Harbor Dock.	$25,000
43 DoD South Tamgas Harbor Dock	This 800-ft long tanker dock served as a supply point and pipeline terminus for fuel loading. Much of the dock has collapsed. Because of the location of this facility with respect to many of the proposed cleanup sites, fixing the dock will allow shipping of supplies and recyclable/ salvable materials.	Replace portions of collapsed dock in-kind; add breakwater, upgrade for bulk handling	$6,400,000
Subtotal, Support Facilities:			$10,405,000

Support Facilities and Roadways Required for Mitigation Activities			
Roadways	**Background**	**Proposed Action**	**Cost**
Metlakatla Road	This road forms the primary access route from Metlakatla to the peninsula. The current road condition would not support the additional traffic and haul weights associated with the proposed cleanup actions. Lead-shielded cable is suspected to be present along the right-of-way.	Repair subgrade, cross drainage, repave 2.5 mi segment from White Alice to Airport Runway with 2" HMAC. Remove lead-shielded communication cable; test and remediate soils as necessary.	$640,000
White Alice Road	This road provides primary access to the White Alice Station at Smugglers Cove. The road is not currently paved.	Repair subgrade, cross drainage, repave 2.5 mi segment from White Alice to Metlakatla road with 3" gravel surface. Investigate for presence lead-shielded cable; test & remediate soils as necessary.	$60,000
Quarry Supply Dock Road	This road extends from the Metlakatla Road eastward towards Tamgas Harbor. The road was originally constructed as a supply road from the docks. There are numerous 55 gallon drums, both with and without product, debris and possible lead shielded cable along this road.	Remove drums and debris; repair subgrade, cross drainage, repave 1.5 mi segment from Metlakatla Road to Docks with 2" HMAC. Remove lead-shielded cable; test and remediate soils as necessary. For 4.0 mi road segment from Docks to Hatchery, remove debris, barrels, replace 3" gravel surface course.	$1,050,000
Beach Road to Metlakatla	This road was constructed between 1961 and 1973 and extends from Metlakatla Road to the Beach at Smugglers Cove.	Regrade, upgrade gravel surface course for approx. 0.5 mi.	$80,000
Beach to Western Avenue Road	The 1972 Master Plan for Metlakatla Island indicated an extension of Beach Road northward from its current terminus at Smugglers towards Metlakatla in order to provide a second north-south access from Metlakatla thus improving the transportation network. As many of the sites may involve hazardous material or conditions, redundant access is an important emergency response/safety measure.	Remove debris, grade, add cross drainage, provide subgrade and gravel surface course; extend 5 miles from Beach Road at Smugglers Cove to Metlakatla to provide redundant access to the peninsula for emergency management during cleanup activities.	$840,000
Hospital Road	The Hospital Road extends from Metlakatla Road eastward to the Hospital, connecting with Crab Point. Lead-shielded cable may be present within the roadway right-of-way.	Repair subgrade, cross drainage, repave 2.5 mi segment from Metlakatla Road to Crab Point with 2" HMAC. Investigate lead-shielded cable and remove as necessary; test and remediate soils as necessary.	$524,000
Ramp to Runway Road	The Ramp to Runway Road connects the east/west runway with the facilities at Crab Point. The road is not paved, and may contain lead-shielded copper cable.	Repair subgrade, cross drainage, repave 1.5 mi segment from Runway to Crab Point with 3" gravel surface course. Investigate for and remove lead-shielded cable if present; test and remediate soils as necessary.	$200,000
Moss Point Road	The Moss Point Road was constructed to provide access to the Moss Point Garrison. The road is not paved, is in disrepair, & may contain lead-shielded cable.	Remove lead-shielded cable; test and remediate soils as necessary.	$30,000
Point Davison Road	Point Davison Road connects Davison Point with the airfield and provides access to the Winnipeg Garrison/Annette Inn, the Annette Inn Auxiliary area, the Tokio Garrison, and several communications facilities at the tip of the peninsula. The right-of-way may contain lead shielded cable.	Repair subgrade, cross drainage, repave 3.0 mi segment from Airport Runway to Point Davison with 3" gravel surface course. Investigate for and remove lead-shielded cable; test and remediate soils as necessary.	$500,000
Subtotal, Roadways:			**$3,920,000**
Subtotal, Facilities to Support Mitigation Activities:			**$14,325,000**

Lake Cleanup and Restoration			
Description	**Background**	**Proposed Action**	**Cost**
Moss Point Lake	Moss Point Lake is a relatively shallow lake located NW of the Hangar area at the Airport, and serves as the headwaters for Moss Point Creek. The lake receives waters from the airport and hangar area and may contain debris and contaminants related to the hangar and airfield operations.	For an approximate 20 ac lake: Remove debris, hazardous substances, provide buffer for industrial area runoff; bring in clean substrate, revegetate fringes.	$1,510,000
Annette Island Airport Lake	Annette Island Airport Lake is a relatively shallow lake located NE of Runway A near the Hangar area . The lake also feeds Moss Point Creek. The lake receives waters from the airport and hangar area and may contain debris and contaminants related to the hangar and airfield operations.	For an approximate 10 ac area: Remove debris, hazardous substances, provide buffer for industrial area runoff; bring in clean substrate, revegetate fringes.	$750,000
Hospital Creek Lake	Hospital Creek Lake is located south of Quarry Supply Dock Road and discharges to both Hospital Creek and to Colby Creek. Both of these waterways outfall to shellfish beds in Tamgas Harbor. Drainage to this lake includes runoff from the Automobile Landfill quarry road and fuel pipeline system.	For an approximate 15 ac area: Remove debris, hazardous substances, bring in clean substrate, revegetate fringes.	$1,130,000
Colby Creek Lake	Colby Creek Lake is located south of Quarry Supply Dock Road and discharges to Colby Creek. This creek outfalls to shellfish beds in Tamgas Harbor. Drainage to this lake includes runoff from the Automobile Landfill, the Bark Landfill, quarry road and fuel pipeline system.	For an approximate 10 ac area: Remove debris, hazardous substances, bring in clean substrate, revegetate fringes.	$530,000
Coast Guard Creek Lake	Coast Guard Creek Lake is located west of Crab Point and north of the Plank Road. The Lake discharges to Coast Guard Creek and into Tamgas Harbor. Drainage to this lake includes runoff from the Plank road, and fuel pipeline system.	For an approximate 2 ac area: Remove debris, hazardous substances, bring in clean substrate, revegetate fringes.	$150,000
Subtotal, Lakes:			$4,070,000

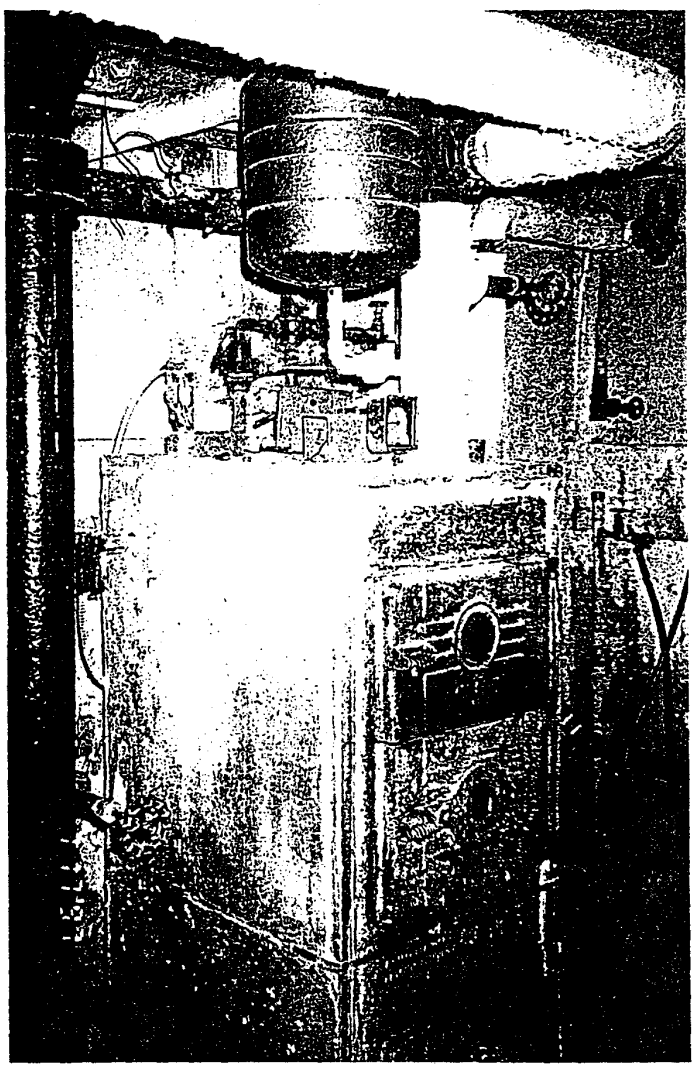
Creeks/Streams Cleanup and Restoration			
Description	**Background**	**Proposed Action**	**Cost**
Hospital Creek (n of Hospital Rd)	Hospital Creek flows southeasterly from Hospital Lake towards the shellfish beds along the north shore of Tamgas Harbor. The Creek is downstream of the Automobile landfill and the fuel pipeline system. The creek may contain all of the contaminants identified on the Island and is important to cold water fisheries.	For an approximate 1,300 LF stream segment: Remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$70,000
Colby Creek (0.5 mi n of Hospital Rd)	Colby Creek flows southeasterly from Colby Creek Lake towards the shellfish beds along the north shore of Tamgas Harbor. The Creek is downstream of the Automobile landfill, and the fuel pipeline system . The creek may contain all of the contaminants identified on the Island and is important to cold water fisheries.	For an approximate 1,700 LF stream segment: Remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$80,000
Gillnet Creek (between Weather Bureau Rd & Canoe Cove Rd)	Gillnet Creek flows east-southeasterly from Metlakatla Road towards south Boy Scout Beach. The Creek provides drainage to Metlakatla Road. Barrels, and debris have been identified in or near this creek; in addition, the creek is downstream of sites containing ACM, LBP, and hydrocarbon contaminated soils. The creek provides vital habitat for cold water fisheries.	For an approximate 4,300 LF stream segment: Remove debris, drums and barrels, contaminants; restore stream hydraulics; bring in clean substrate, augment stream habitat structures, riparian vegetation.	$220,000
Yellow Hill Lake Creek (n side Smugglers Cove)	Yellow Hill Lake Creek flows easterly from Yellow Hill towards the shellfish hatchery along the n shore of Smugglers Cove. The creek contains drainage from the DoD Water Treatment Plant, the Engineer's Garrison, and Metlakatla Road. The creek may contain mercury from the treatment plant site, hydrocarbons from tanks from the garrison, or lead from lead-shielded cable in Metlakatla Road and these other locations. The creek is important to cold water fisheries.	For an approximate 4,200 LF stream segment: Investigate for mercury, lead, hydrocarbons; remove debris, contaminants, restore stream hydraulics to allow fish passage to Yellow Hill Lake, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$220,000
Canoe Cove Creeks II, III (Canoe Cove)	The Canoe Cove Creeks are located north and south of, and receive drainage from, the Canoe Cove Garrison. It is likely that these creeks were channelized during garrison construction. Both creeks contain debris, and possible lead and hydrocarbon contamination from the garrison. These creeks discharge to oyster beds in Canoe Cove.	For an combined 2,000 LF stream segment: Investigate hydrocarbon, other contaminants, remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$100,000
Smugglers Creek II (White Alice Road)	Smugglers Creek II flows westerly through White Alice, and may receive drainage from the Abandoned Landfill. The creek may contain all of the contaminants identified on the Island and drains to an important shellfish and subsistence fishing area of Smugglers Cove.	For an approximate 1,200 LF stream segment: Remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$70,000

Creeks/Streams Cleanup and Restoration (continued)			
Description	Background	Proposed Action	Cost
Weather Bureau Creek (n of Weather Bureau Rd)	This creek flows northwesterly towards Smugglers Cove and drains area off of Weather Bureau Rd including the Non-directional Beacon, the Weather Bureau Housing and the RCAG. The creek may contain all of the contaminants identified on the Island and is important to cold water fisheries.	For an approximate 2,000 LF stream segment: Investigate for contaminants, remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$100,000
Tokyo Creek (Tokyo Garrison)	Tokyo Creek flows northeasterly from the Tokyo Garrison towards Annette Inn Creek. This creek contains drainage from Point Davison Road, and the garrison. The creek may contain all of the contaminants identified on the Island and is important to cold water fisheries.	For an approximate 2,600 LF stream segment: Investigate contaminants, remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$150,000
Annette Inn Creek (Annette Inn)	Annette Inn Creek flows from Point Davison Road southeasterly towards an inlet south of Moss Point. The creek drains Tokyo Creek, the Winnipeg Garrison/Annette Inn/, and Annette Inn Auxiliary and was likely channelized to support site construction. There is debris in the creek and possible contaminants. The creek is important to cold water fisheries.	For an approximate 2,500 LF stream segment: Investigate contaminants, remove debris, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$140,000
Moss Cove Creek (s of Moss Point Rd)	Moss Cove Creek drains from Moss Point Road through the Moss Point Garrison. The creek was channelized to support site construction, and contains considerable debris. The creek may contain all of the contaminants identified on the Island.	For an approximate 1,000 LF stream segment: Remove debris, culverts, contaminants, restore stream hydraulics, bring in clean substrate, augment stream habitat structures, riparian vegetation.	$70,000
Moss Point Creek (n of Moss Point Rd)	Moss Point Creek originates Moss Point Lake at the south end of Annette Island Airport near the Hangar area , and flows under both runways southeasterly towards Moss Point. As such, this channel has been significantly impacted by the defense-related facilities on the island. The creek may contain all of the contaminants identified on the Island and is important to cold water fisheries.	For an approximate 2,700 LF stream segment: Investigate contaminants, remove barrels, debris, contaminants; upgrade culverts at airport to allow fish passage; restore stream hydraulics, bring in clean substrate, augment steam habitat structures, riparian vegetation.	$160,000
Subtotal, Creeks/Streams:			**$1,380,000**

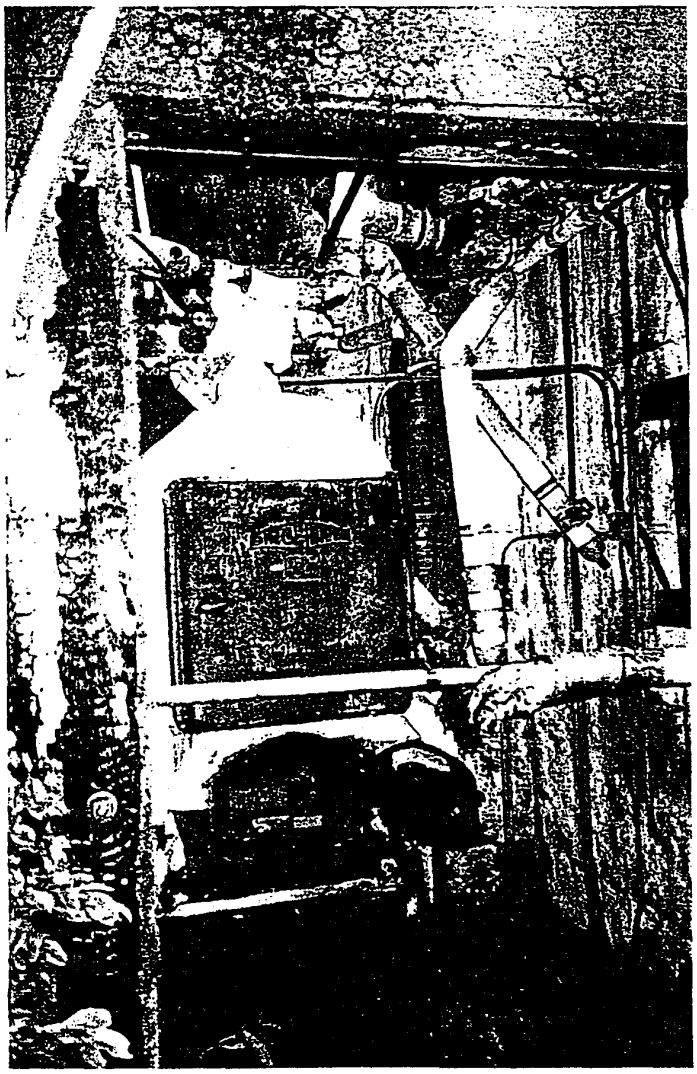
Beach and Shoreline Cleanup and Restoration			
Description	**Background**	**Proposed Action**	**Cost**
Tamgas Harbor (N of Supply Dock past Tent Point)	The beaches of Tamgas Harbor have been impacted from activities from the DoD Supply Dock southward past the facilities on Crab and Tent Points. There is considerable debris along these beaches and potential dumping off of the docks and ramps; potential contaminants include hydrocarbons, ordnance, transformers (PCB's), barrels, lead from lead shielded lines, lead based paint and ACM.	For an approximate 4.5 mi beach segment: Investigate contaminants, remove barrels, transformers, debris, contaminants; flush existing shell beds to cleanse.	$1,910,000
Moss Point (Moss Point S past Annette Inn Creek outfall)	The Moss Point shoreline has been impacted from activities from the Moss Point Garrison. There is considerable debris along these beaches and possible dumping off of the shore; potential contaminants include hydrocarbons, ordnance, transformers (PCB's), barrels, lead from lead shielded lines and gunnery ranges, lead based paint and ACM.	For an approximate 2.6 mi beach segment: Investigate contaminants, remove debris, contaminants; flush existing shell beds to cleanse.	$1,120,000
Smugglers Cove (Near White Alice Road & near Weather Bureau Creek outfall)	The Smugglers Cove shoreline has been impacted from activities from the White Alice Station and from materials transported by Weather Bureau Creek. There is considerable debris along these beaches; potential contaminants include hydrocarbons, transformers (PCB's), barrels, metals from upstream sources, LBP and ACM.	For an approximate 1.5 mi beach segment: Investigate contaminants, remove debris, contaminants; flush existing shell beds to cleanse.	$640,000
Boy Scout Beach (Near Gill Net Cr outfall)	Boy Scout Beach has been impacted through discharge and transport of materials from upstream sources by Gill net Creek. There is considerable debris, barrels, etc. along this beach; potential contaminants include hydrocarbons, barrels, and metals from upstream sources.	For an approximate 0.75 mi beach segment: Investigate contaminants, remove barrels, transformers, debris, contaminants; flush existing shell beds to cleanse.	$320,000
Salt Chuck (North Shore)	The Salt Chuck has been impacted from activities along Point Davison Road, and materials washed downstream from the Moss Point facilities. There is considerable debris along these beaches and potential dumping off of transformers and ACM; potential contaminants include hydrocarbons, transformers (PCB's), barrels, lead from lead shielded lines, LBP &ACM.	For an approximate 4.5 mi beach segment: Investigate contaminants, remove barrels, transformers, debris, contaminants; flush existing marshy areas to cleanse.	$1,910,000
Subtotal, Beaches and Shorelines:			**$5,900,000**
Subtotal, Habitat Cleanup and Restoration			**$11,350,000**

TOTAL MASTER PLAN RESOURCE REQUIREMENTS	**$107,200,000**

PHOTOGRAPHS

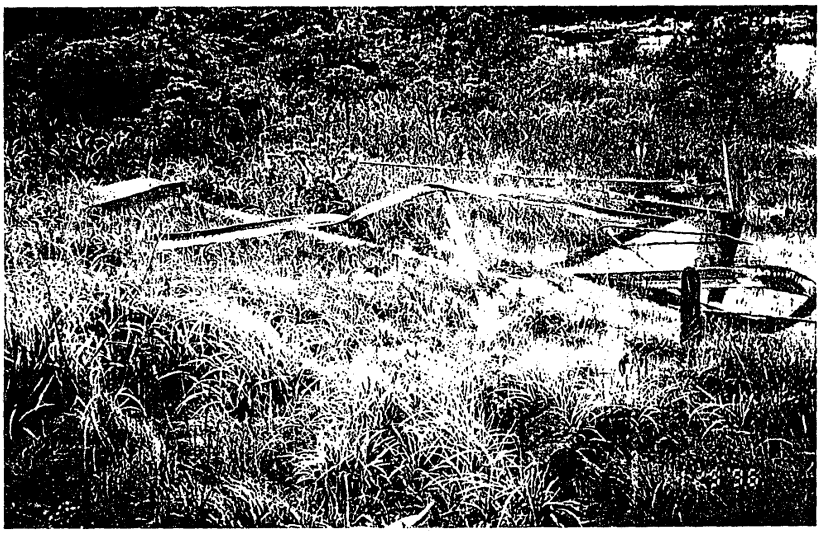


FAA Housing Boiler - Site 53.
Friable asbestos in thermal insulation, and other asbestos containing materials in boiler room of FAA housing unit.

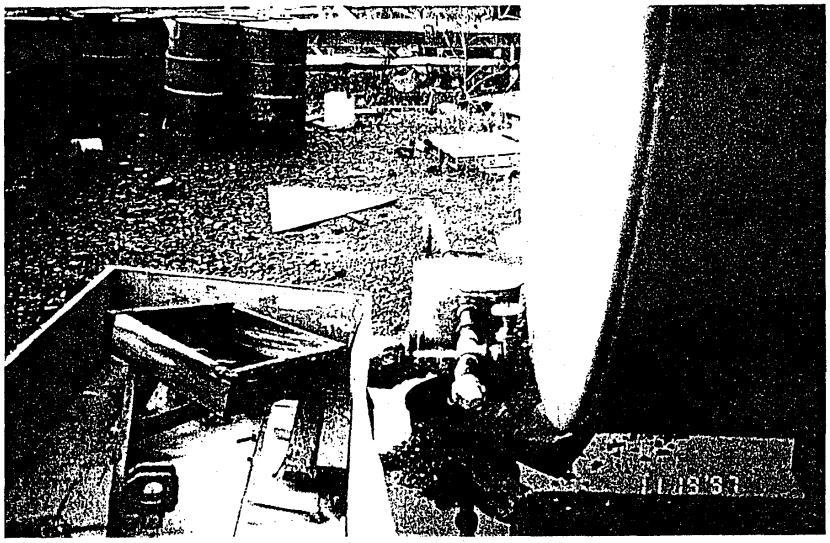


Public School Boiler - Site 54.
Friable asbestos in thermal insulation, boiler jacket, and pipe elbows in Public School boiler room. Numerous former federal facilities on the Peninsula contain asbestos in insulation, floor tiles, ceiling tiles, wallboard, and various other building materials.

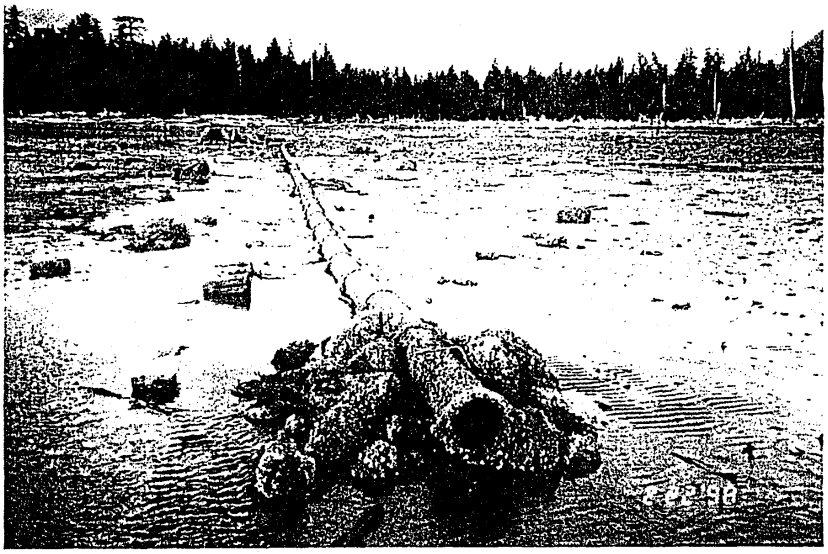
Localizer Building - Site 80.
Red and white lead-based paint flaking from exterior of the Localizer building. Lead concentrations in soil around many facilities exceed federal cleanup standards.



Antenna Tower - Site 16.
Segment of an antenna tower with flaking lead-based paint. The red and white paint on some of the antenna towers contains more than 80% lead. Lead may be leaching into ground water or surface water at this wetland site.



BIA Power Generation Plant - Site 9.
Above-ground Storage Tank (AST) at former BIA power plant leaking petroleum product onto the ground. All AST's sampled lacked secondary containment, and soil samples taken near most AST's contained levels of petroleum hydrocarbons and other hazardous substances which exceed federal cleanup standards.

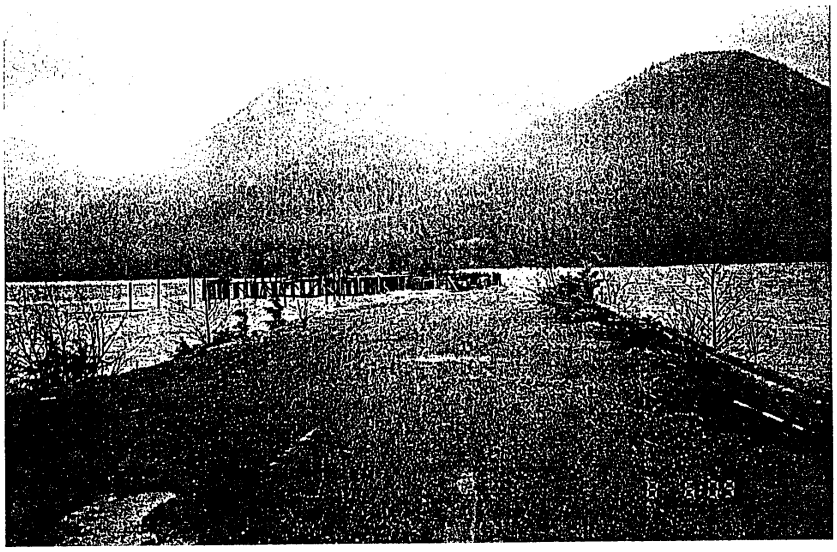


U.S. Coast Guard Housing Sewer Outfall - near Site 48.
This abandoned sewer outfall was associated with USCG facilities near the former construction camp at Tent Point. Several hundred feet of sewer line are visible at low tide, as well as debris associated with former military use of the area south of Tent Point.

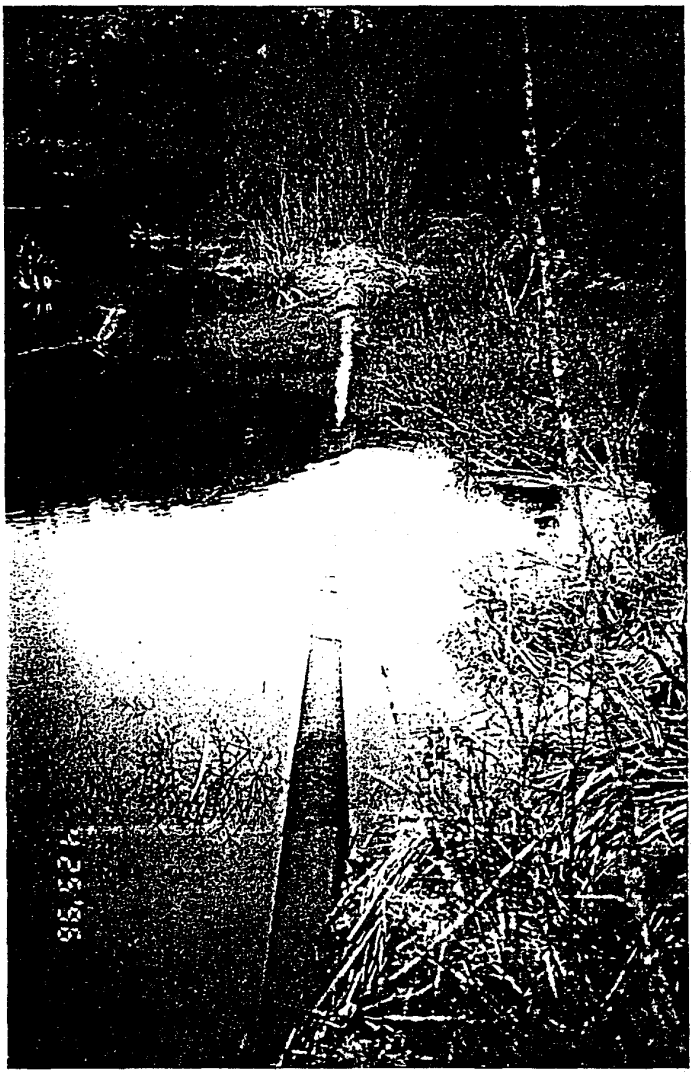
Canoe Cove Garrison - Site 26.
Wood-stave Underground Storage Tank (UST) associated with the former Canoe Cove Garrison leaking petroleum products into soil approximately 15 feet upslope from Canoe Cove Creek. Product from this UST was observed draining to the creek in surface runoff during a moderate rain event.

Air Traffic Control Tower - Site 78.
Tree growing around the fill pipe of a UST adjacent to the former air traffic control tower south of the hangar.

DoD South Tamgas Harbor Dock - Site 43.
This dock once served as a supply point and a pipeline terminus for fuel loading. Debris, ordnance, and chemical waste were reportedly dumped into Tamgas Harbor off the end of the now collapsed dock.

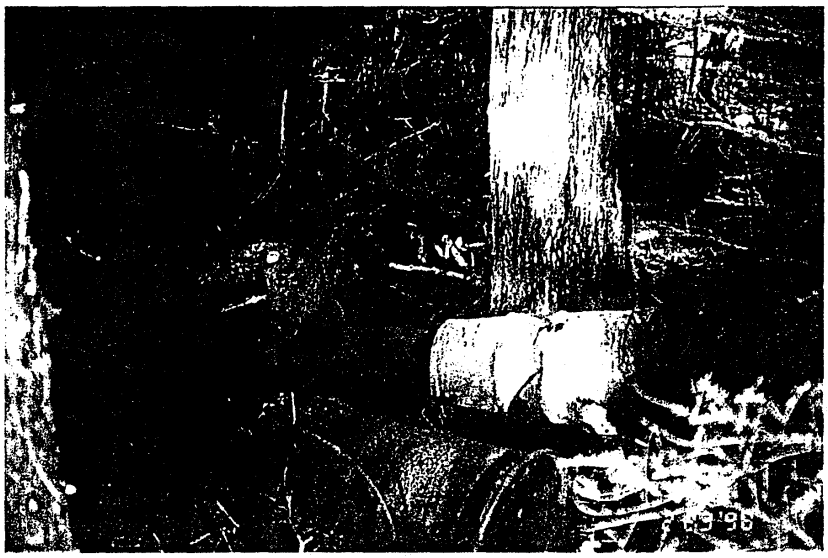


DoD South Tamgas Harbor Dock - Site 43.
The remains of the South Tamgas Harbor Dock and ramp. The 800 foot dock and ramp have eroded and collapsed in many places and are no longer usable.



Waterline - Site 14.
More than 8 miles of waterline extend across the peninsula, mostly at the surface. Here, Black asbestos-containing fabric tack coat has eroded off the pipe. At the far end (top of picture), black asbestos fabric cover, and the glass block covering the tack coat can be seen.

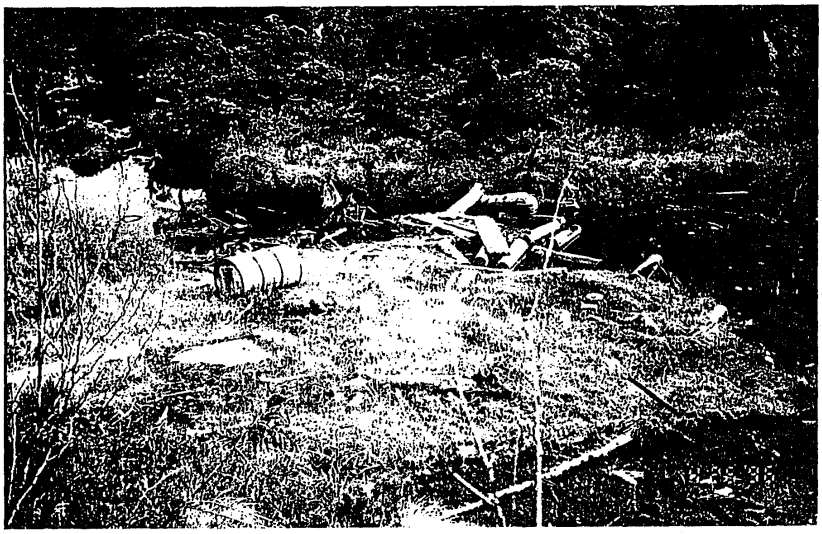
Seep - near Site 42.
An oil sheen can frequently be seen at this seep near the fuel pipeline from the former FAA Tank Farm. Surface staining is visible from the seep downslope to the beach near the Tamgas Harbor dock.



DoD Hospital Area - Site 18.
Several hundred steel drums were dumped at this site near the Hospital Mess Hall. Numerous woodstave waste drums, a woodstave UST, old vehicles, structures, and other debris remain scattered throughout the site. Contaminants including petroleum fuels, volatile organics, herbicides, and metals have been found in the deteriorating woodstave drums.

Hospital Sewer Outfall - Site 18.
At low tide the sewer outfall from the former DoD hospital site can be seen extending from the beach onto tidal flats in Tamgas Harbor.

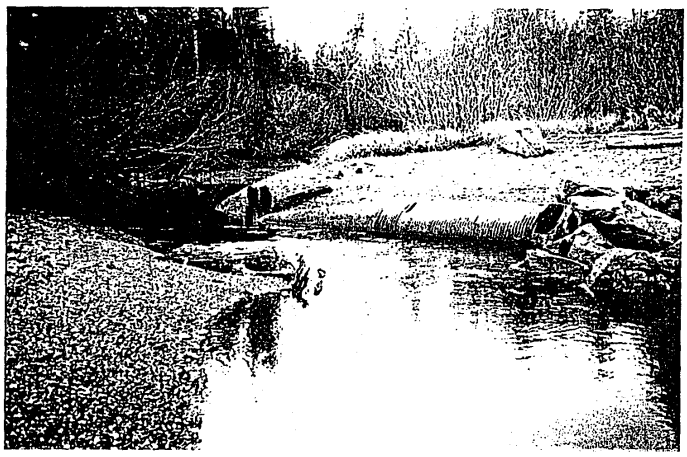
Former DoD Landfill - Site 10.
Runoff from this 2 acre landfill, which contains numerous barrels and other metal, rubber, and wood debris, drains directly to a fish-bearing lake approximately 250 feet downslope.



US Coast Guard Parking Circles - Site 47.
Barrels, shell canisters, and other debris lie in wetlands at a former Coast Guard parking circle.

Creek at BIA Power Generation Plant - Site 9.
The visible oil sheen on the surface of this small creek which runs along the perimeter of this site appeared after a minor disturbance of sediment on the creek bottom. This creek drains to a fish-bearing lake approximately 2000 feet downslope.

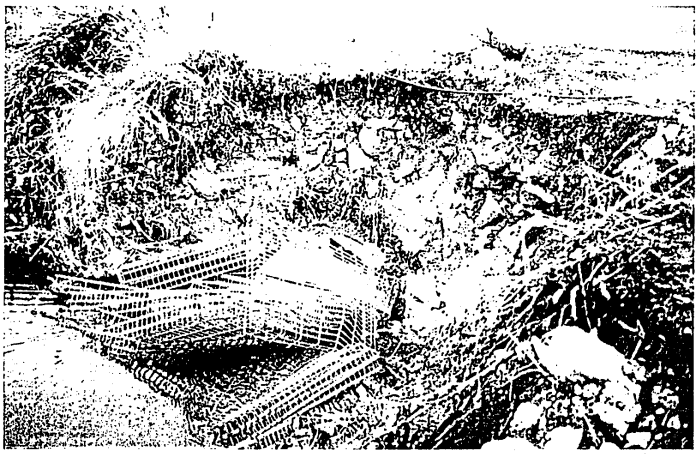
Gillnet Creek - near Site 24.
The Canoe Cover spur road to the Middle Marker Facility (Site 24) was constructed through Gillnet Creek, a salmon-bearing stream. The unpaved road contributes sediment to the stream, the culvert obstructs fish passage, and barrels and other debris impact instream and riparian habitat.



Colby Creek - near Site 18.
Colby Creek, an important salmon stream, runs through the former DoD Hospital area (Site 18) and enters Tamgas Harbor through a washed-out section of the former Hospital Road. The banks of Colby Creek are littered with World War II-era vehicles and other debris, and abandoned wastes near the old hospital site may be affecting water quality and impacting instream habitat.

Annette Inn Creek - near Site 82.
Collapsed structures, septic lines, and other debris from the former Winnipeg Garrison impact instream and riparian habitat of Annette Inn Creek, a salmon-bearing stream, approximately one-half mile from its mouth.

Moss Point Creek - near Site 33.
This important salmon-bearing stream
emerges from a culvert that limits
salmon migration under the B runway
approximately 1 mile from its mouth.



Moss Point Creek - near Site 33, Main Runway. Bank erosion and debris around the entrance of a culvert where the creek passes under the main runway. In this short segment between Airport Road and the runway, numerous discarded barrels are buried in the streambank and scattered in and along the stream.

Moss Point Creek Headwaters - near Site 67.
Moss Point Creek is connected to this lake at its headwaters through a culvert under Airport Road. The natural flow and course of the creek have been significantly altered by construction of the road and landing field. As the creek passes under the road, the main runway and taxiways, and the B runway, it is exposed to contaminants in surface runoff.

FAA Asphalt Plant - Site 37.
This raven became trapped and died in a pool of tar near the former Asphalt Plant used for runway paving operations. It is estimated that 10,000 to 30,000 drums of asphalt were used to pave the runway in the late 1940's, and numerous discarded drums and tar wastes still exist around this site.